### PATENT COOPERATION TREATY

## **PCT**

# TRANSLATION INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference TU04-1005WO1	FOR FURTHER ACTION	See Form PCT/IPEA/416				
International application No.	International filing date (day/month/year	Priority date (day/month/year)				
PCT/JP2004/015777	25.10.2004	19.11.2003				
International Patent Classification (IPC) or nati	onal classification and IPC	-				
C23C14/34, C22B3/00, 9/10, 9/22, C22C27/00						
Applicant						
NIKKO MATERIALS CO.,	LTD.					
	<ol> <li>This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.</li> </ol>					
2. This REPORT consists of a total of		cluding this cover sheet.				
3. This report is also accompanied by A						
		charte ne follower				
1	a. (sent to the applicant and to the International Bureau) a total of sheets, as follows:  sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or					
sheets of the description, claims and/of drawings which have been allefuled and are the basis for this report and/of sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).						
sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.						
	D					
b. (sent to the International )	Bureau only) a total of (indicate type and i	number of electronic carrier(s))				
related thereto, in computer	readable form only, as indicated in the	, containing a sequence listing and/or tables Supplemental Box Relating to Sequence Listing (see				
Section 802 of the Administ		Supplemental Box Relating to Sequence Disting (see				
4. This report contains indications relati	ng to the following items:					
Box No. I Basis of the	report	eport				
Box No. II Priority						
Box No. III Non-establi	shment of opinion with regard to novelty,	nment of opinion with regard to novelty, inventive step and industrial applicability				
Box No. IV Lack of unit	of invention					
DON THE !	Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement					
Box No. VI Certain doc	Box No. VI Certain documents cited					
Box No. VII Certain defe	ects in the international application					
Box No. VIII Certain observations on the international application						
Date of submission of the demand Date of		n of this report				
		- <b>L</b>				
Name and mailing address of the IPEA/JP	Authorized officer					
Facsimile No.	Telephone No.					

#### INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.
PCT/JP2004/015777

Box	k No. I	I Basis of the report		
1.		h regard to the language, this report is based on the internation cated under this item.	nal application in the language in which it was filed, unless otherwise	
		This report is based on translations from the original language which is the language of a translation furnished for the purp	ge into the following language, sees of:	
		international search (Rule 12.3 and 23.1(b))		
		publication of the international application (Rule 12.4)		
		international preliminary examination (Rule 55.2 and/o	or 55.3)	
2.	recei	eiving Office in response to an invitation under Article 14 are	report is based on (replacement sheets which have been furnished to the ereferred to in this report as "originally filed" and are not annexed to	
	this	report):		
	$\boxtimes$	the international application as originally filed/furnished the description:		
		•	as originally filed/furnished	
			received by this Authority on	
			received by this Authority on	
	$\boxtimes$	the claims:	· · · · · · · · · · · · · · · · · · ·	
		nos.	as originally filed/furnished	
		· <del></del>	as amended (together with any statement) under Article 19	
			received by this Authority on15.03.2005	
			received by this Authority on	
		the drawings:		
		sheets	as originally filed/furnished	
		sheets*	received by this Authority on	
		sheets*	received by this Authority on	
		a sequence listing and/or any related table(s) – see Suppleme	ental Box Relating to Sequence Listing.	
3.	$\boxtimes$	The amendments have resulted in the cancellation of:		
		the description, pages		
		the claims, nos. 4,6	igtriangledown	
		the drawings, sheets/figs		
		the sequence listing (specify):		
		any table(s) related to sequence listing (specify):		
4.		This report has been established as if (some of) the amend they have been considered to go beyond the disclosure as fil	ments annexed to this report and listed below had not been made, since ed, as indicated in the Supplemental Box (Rule 70.2(c)).	
		the description, pages		
		the claims, nos.		
		the drawings, sheets/figs		
		the sequence listing (specify):		
		any table(s) related to sequence listing (specify):		
*	If ite	em 4 applies, some or all of those sheets may be marked "supe	rseded."	

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Box	Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement			
1.	Novelty (N) Claims 1, 2, 3, 5	_ YES		
	Inventive step (IS)  Claims  1, 2, 3, 5  Claims	_ YES		
	Industrial applicability (IA) Claims 1, 2, 3, 5  Claims	_ YES		
2.	Citations and explanations (Rule 70.7)			
	Document 1: JP 2002-105552 A (Nikko Materials Co., Ltd.), 10 April 2002			
	Document 2: JP 4-358030 A (Toshiba Corp.), 11 December 1992			
	Document 3: JP 7-316681 A (Japan Energy Corp.), 05  December 1995			
	Document 4: JP 2003-193150 A (Sumitomo Titanium Corp.), 09 July 2003			
	Document 5: JP 4-99829 A (President of The Kyoto University), 31 March 1992			
	Document 6: JP 2000-345252 A (Kabushiki Kaisha Sumitomo Sitix Amagasaki), 12 December 2000			
	Document 7: JP 2002-206103 A (Nikko Materials Co., Ltd.), 26 July 2002			
	Document 8: JP 2003-306728 A (ATI PROPERTIES INC.), 31 October 2003			
	Claims 1, 2, 3 and 5			
	The high-purity hafnium with an oxygen content that			
	conforms to the range set forth in claim 1, a zirconium			
	content that conforms to the range set forth in claim 1,			
	a sulfur content that conforms to the range set forth in			
	claim 1 and a phosphorous content that conforms to the			

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	PC1/0P2004/013///
Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive citations and explanations supporting such statement	step or industrial applicability;
range set forth in claim 1; the target th	at comprises
said high-purity hafnium; the thin film t	hat comprises
said high-purity hafnium; and the method	for the
production of said high-purity hafnium ar	e not disclosed
in any of the documents that are cited in	the
international search report, and would no	t have been
obvious to a person skilled in the art.	

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Box No. VIII Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

As a result of the amendments, the Zr content of the inventions set forth in claims 1 to 3 is reduced to a range of less than 0.1% by weight. However, the high-purity Hf that is produced in example 2 contains 1.5% by weight of Zr; therefore, the example in question is no longer an example of the inventions set forth in the claims in as much as said example goes beyond the scope of the claims as amended. Such being the case, it is necessary to refer to the reference examples and the like.